

What is claimed is:

1           1. A lithium secondary battery comprising:  
2           a case;  
3           an internal electrode body positioned inside said case, said internal electrode body  
4 comprising at least one positive electrode, at least one negative electrode and at least one  
5 separator interposed between said positive electrode and said negative electrode, said positive  
6 electrode and said negative electrode being electrically insulated from each other;  
7           at least one electrolyte contained inside said case;  
8           a first terminal electrically connected to said negative electrode;  
9           a second terminal electrically connected to said positive electrode; and  
10          at least one insulator positioned between said case and at least one of said first and  
11 second terminals, said insulator comprising ethylene-propylene rubber.

1           2. A lithium secondary battery as recited in claim 1, wherein said insulator has a  
2 surface hardness of from 30 (durometer A) to 60 (durometer D).

1           3. A lithium secondary battery as recited in claim 1, wherein said case comprises a  
2 body member and at least a first end cap, said first end cap being positioned at a first end of  
3 said body member, said insulator being positioned between said first terminal and said first  
4 end cap.

1           4. A lithium secondary battery as recited in claim 3, wherein said body member is  
2 generally cylindrical.

1           5. A lithium secondary battery as recited in claim 3, wherein said body member has a  
2 first crimped portion in which said first end cap is clamped.

1           6. A lithium secondary battery as recited in claim 1, wherein said case comprises a  
2 body member, a first end cap and a second end cap, said first end cap being positioned at a  
3 first end of said body member, said second end cap being positioned at a second end of said

body member, said internal electrode body being positioned between said first and second end caps, said insulator being positioned between one of said first and second terminals and an adjacent one of said first and second end caps.

7. A lithium secondary battery as recited in claim 6, wherein said body member is generally cylindrical.

8. A lithium secondary battery as recited in claim 6, wherein said body member has a first crimped portion in which said first end cap is clamped, and a second crimped portion in which said second end cap is clamped.

9. A lithium secondary battery as recited in claim 6, wherein said at least one insulator is positioned between said first end cap and said first terminal, and a second insulator is positioned between said second end cap and said second terminal.

10. A lithium secondary battery as recited in claim 1, wherein said insulator material has a volume resistivity of at least  $10^{10}$   $\Omega$ -cm.

11. A lithium secondary battery comprising:  
a body member;  
an internal electrode body positioned inside said body member, said internal electrode body comprising at least one positive electrode, at least one negative electrode and at least one separator interposed between said positive electrode and said negative electrode, said positive electrode and said negative electrode being electrically insulated from each other;  
at least one electrolyte contained inside said body member;  
a first terminal electrically connected to said negative electrode;  
a second terminal electrically connected to said positive electrode;  
at least one end cap; and  
at least one insulator positioned between said body member and said at least one end cap, said insulator comprising ethylene-propylene rubber.

12. A lithium secondary battery as recited in claim 11, wherein said body member is generally cylindrical and said at least one end cap is positioned at a first end of said body member.

13. A lithium secondary battery as recited in claim 12, wherein said body member has a first crimped portion in which said first end cap is clamped.

14. A lithium secondary battery as recited in claim 11, wherein said at least one end cap is positioned at a first end of said body member, said battery further comprising a second end cap positioned at a second end of said body member, said internal electrode body being positioned between said first end cap and said second end cap.

15. A lithium secondary battery as recited in claim 14, wherein said body member is generally cylindrical.

16. A lithium secondary battery as recited in claim 14, further comprising a second insulator positioned between said second end cap and said body member, said second insulator comprising ethylene-propylene rubber.

17. A lithium secondary battery as recited in claim 14, wherein said body member has a first crimped portion in which said first end cap is clamped, and a second crimped portion in which said second end cap is clamped.

18. A lithium secondary battery as recited in claim 11, wherein said insulator material has a volume resistivity of at least  $10^{10} \Omega\text{-cm}$ .

19. A lithium secondary battery as recited in claim 11, wherein said insulator has a surface hardness of from 30 (durometer A) to 60 (durometer D).